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ARCHIVES OF PEDIATRICS

A MONTHLY DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN

JOHN FITCH LANDON, M.D., Editor

LEADING ARTICLES IN THIS NUMBER

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(a) *Average levels of ascorbic acid significantly higher in* MINUTE MAID: Obviously, this advantage of MINUTE MAID, observed in the samples tested, is susceptible to variation, from season to season, as crops differ. It should be emphasized, however, that, penny for penny and year after year, the lower-priced MINUTE MAID offers the housewife *more* ascorbic acid than she could get from home-squeezed orange juice.

(b) *Peel oil content significantly lower:* Samples of orange juice, home-squeezed by typical housewives, showed contents of peel oil, a cause of allergic response and poor tolerance, especially in infants, were up to 700% higher than in MINUTE MAID!

(c) *Bacterial counts dramatically lower:* Bacterial counts were found to be as high as 350,000 per ml. in home-squeezed samples, but were uniformly low in MINUTE MAID.

Since publication of the above findings, more and more physicians are recommending MINUTE MAID Fresh-Frozen Orange Juice in place of home-squeezed orange juice where optimum year-around intake of natural Vitamin C is indicated.

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New Assays Reaffirm Dietary Advantages of Minute Maid Fresh-Frozen Orange Juice on a Cost Basis

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In this latest study, each sample was analyzed separately. The analyses showed that MINUTE MAID Fresh-Frozen Orange Juice was equal to, or superior to, the home-squeezed juice in *all* of the components listed below:

TABLE

Mean Values in Samples Tested

COMPONENT	UNITS	MINUTE MAID FRESH-FROZEN ORANGE JUICE	HOME-SQUEEZED ORANGE JUICE
Betaine	mg./100 ml.	49	46
Biotin	mcg./100 ml.	0.26	0.26
Choline	mg./100 ml.	12	12
Cobalt	mcg./100 ml.	74	67
Folic acid	mcg./100 ml.	2.2	2.2
Iodine	mcg./100 ml.	0.24	0.21
Manganese	mcg./100 ml.	33	18
Nitrogen			
Total	mg./100 ml.	104	79
Amino	mg./100 ml.	22	22
Volatile	mg./100 ml.	8	7
Non-volatile	mg./100 ml.	96	72
Pantothenic acid	mcg./100 ml.	146	145
Para-amino-benzoic acid	mcg./100 ml.	4	4
Phosphorus	mg./100 ml.	19	18
Potassium	mg./100 ml.	380	290
Riboflavin	mcg./100 ml.	18	17
Tocopherols	mg./100 ml.	107	104
Vitamin A	mcg./100 ml.	19	16
Thiamine	mcg./100 ml.	87	83
Vitamin B_{12}	mcg./100 ml.	0.0022	0.0012

Although the results are again susceptible to variation according to crop and year, Fresh-Frozen MINUTE MAID was equal to the home-squeezed juice in the samples tested for the largest number of components listed; and in the mean values for iodine, manganese, potassium, Vitamins A and B_{12}, MINUTE MAID showed appreciably *higher* values.

SUMMARY

These new findings help enlarge professional knowledge of the nutrient constituents of orange juice in general and add fresh evidence that, on a cost basis, MINUTE MAID Fresh-Frozen Orange Juice has significant dietary advantages. Penny for penny, MINUTE MAID offers not only *more* Vitamin C, but also *more* of all the other vitamins and minerals listed than home-squeezed orange juice.

Taken in conjunction with the previously published findings, this should confirm the choice of physicians who recommend MINUTE MAID in place of home-squeezed orange juice.

REFERENCES:

(1) Rakieten, M. L., *et al.*, Journal of the American Dietetic Association, October, 1951.
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Reference #3 still available in reprint form.

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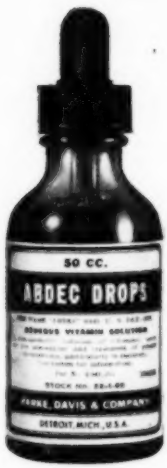

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1. Heimer, C. B., Grayzel, H. G. and Kramer, B.: Archives of Pediat. 68:382, 1951.
2. Behrman, H. T., Combes, F. C., Bobroff, A. and Leviticus, R.: Ind. Med. & Surg. 18:512, 1949.

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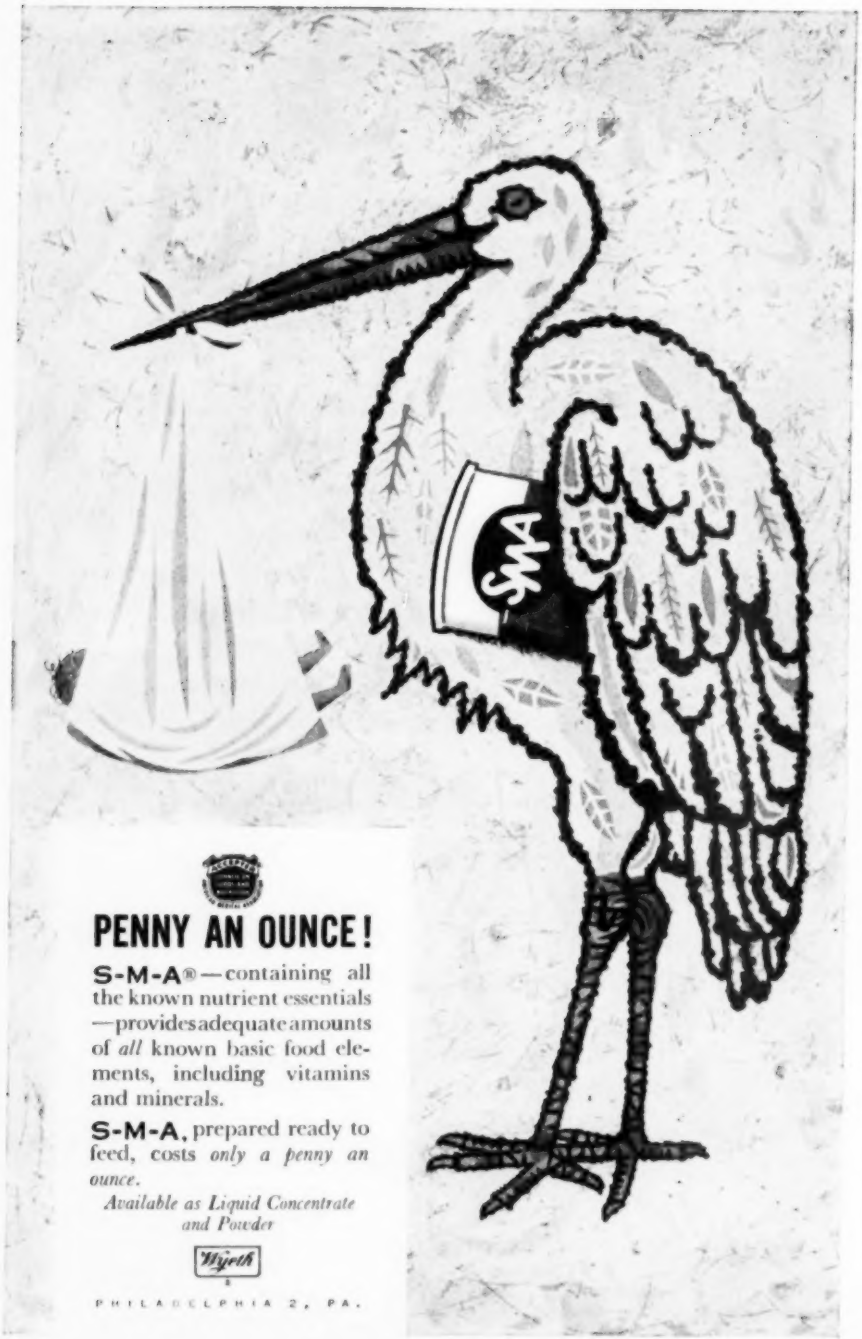

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ARCHIVES OF PEDIATRICS

VOL. 70 JULY 1953 No. 7

JOHN FITCH LANDON, M.D., Editor

THE EARLY RECOGNITION AND TREATMENT OF POSTURAL DEFORMITIES*

JOHN G. KUHNS, M.D.

Boston.

When man assumed the upright position and bipedal locomotion, his extensor muscles entered upon a precarious struggle with the force of gravity. In this struggle, gravity caused displacement of portions of the body with resulting postural deformities. It is surprising, with the number of untrained individuals, that so few deformities and symptoms are found. The body has remarkable powers of adaptation and compensation which prevent the development of disability and symptoms until these deformities are severe in character. Their frequency is demonstrated by draft board examinations and by the studies of physical educators which show that about 90 per cent of all young adults present significant postural deformities.

While it is gravity, acting on the immature, not properly balanced body, which produces the changes which we call postural deformities, there are many factors which encourage their development. Among these are congenital contracture, malnutrition, chronic illness, tight clothing, faulty furniture, deforming diseases and degenerative processes. All of these either weaken the muscles or interfere with their function. Good posture is maintained by the synchronous contraction of the big extensor muscles and their antagonists.

The importance of the early recognition of deformities of car-

*Read before American Academy of Pediatrics, April 21, 1953.

riage and their relationship to impaired function was early recognized by cattlemen and those who breed dogs and similar pets for show purposes. A large number of the faults which they recognize in these quadrupeds are similar to postural deformities in the human, and the arguments which are brought forth for better function, improved appearance and absence of deformity in cattle and dogs are just as cogent in relation to human beings.

When we speak of faulty posture few of us are speaking of the same thing. We have no quantitative measurement for these disalignments of the body. Because of this, most orthopedic surgeons prefer to describe the location of the displacement of portions of the body according to easily shifting anatomic segments and to muscular masses which act as a unit against the force of gravity (Fig. 1). These postural deformities, which are recognizable displacements of a portion of the body, are usually grouped about as follows: 1. Ventral displacement of the head with increased flexion of the neck. 2. Round shoulders and flat chest. 3. Increase of the anteroposterior curves of the spine, called dorsal kyphosis and lumbar lordosis. 4. Forward tilt of the pelvis with prominence of the lower abdomen. 5. Torsion of the upper or lower legs with knock-knee or pronation of the foot. It is impossible for any of these postural deformities to occur without equal displacement above or below the deformity. This is necessary for balance. But in combating gravity the body does not necessarily function as a unit.

It should not be difficult for a physician to recognize these displacements in the early stages when they are easiest to correct. However, there is still considerable controversy over what should be called normal variation in balance and what is the beginning of a postural deformity. Faulty posture is not a natural accompaniment of growth at any stage; neither is spontaneous correction of postural deformities a common occurrence. There should be no doubt about this problem after a child has been under observation for a few months. The means of recognition of a postural deformity are: First, the persistence of the deformity; it is constantly present. Secondly, it quickly leads to muscular tightness and to limitation of motion both in the spine and in the extremities. Thirdly, the deformity slowly becomes worse.

What should be looked for in a well aligned body when no

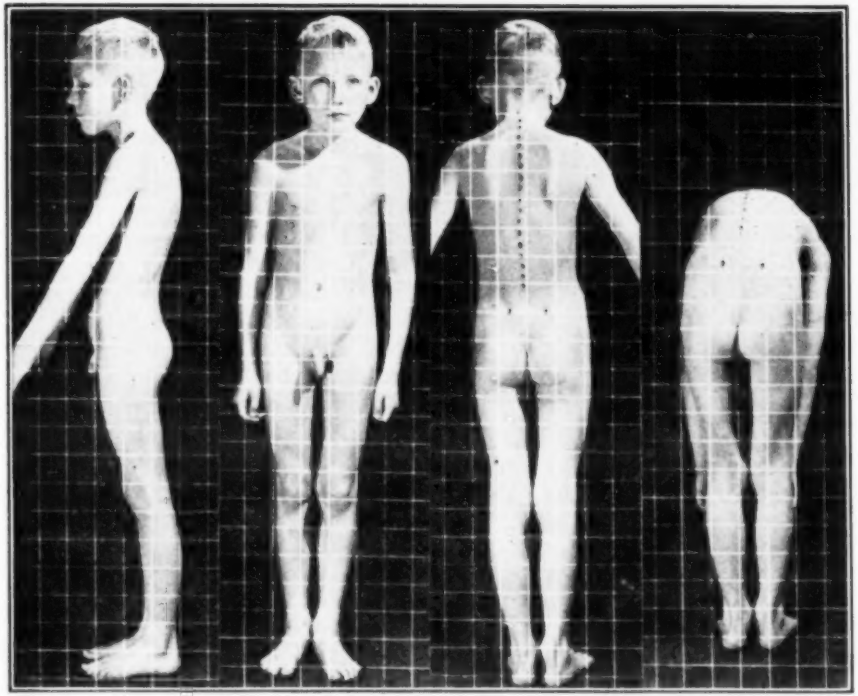

Fig. 1.

A. Head is in front of torso and there is increased ventral flexion of neck. Shoulders are rounded and chest is flat. Anteroposterior curves of spine are increased. Abdomen is prominent and the pelvis is tipped forward.

B. When the pelvis is tipped forward the legs rotate inward. Patellae face medially and feet are pronated.

C. Mild lateral curvature often associated with faulty posture.

D. Tightness in muscles and fascia, an accompaniment of faulty posture.

postural deformity is present? The head should be balanced over the torso with no forward or backward displacement. The chest should project farther forward than any other portion of the body. If the chest is not flat, the shoulders cannot be rounded since similar muscles control both. There should be no appreciable anteroposterior curves in the spine. The abdomen should be flat and not protuberant. With relaxation of the abdominal muscles, there is an increased forward tilting of the pelvis and a prominence of the abdomen below the umbilicus. Forward tipping of the pelvis beyond 45° from the horizontal, as Graham has shown, leads to a forward shifting of the center of gravity with internal rotation of the femoral columns. This encourages the development of knock-knees and pronated feet.

If disalignments are looked for and an attempt is made to understand and correct them at once, serious deformation can be prevented. Measures employed at this stage need not disturb the normal activities of the child. The measures employed should be both general ones directed against the underlying causes of the faulty posture, such as fatigue and malnutrition, faulty clothing and furniture, and local ones directed against the special deformations. The manner in which these measures are applied depends upon the age of the child. Prophylactic measures can be started as has been shown by Fitzhugh, as soon as the child is born.

During the first six months of the child's life he is a fairly passive object and assumes the position of whatever he rests upon. For that reason he should lie on flat, firm surfaces with very little if any pillow under the head. It does not matter particularly whether he lies on his back, on his side, or his face as long as his breathing is not disturbed. When a child is held he should be held firmly against a firm portion of the adult's body with both hands. The child should not be forced to sit up before his muscles get strong enough to do this. Usually a child at first will sit up for only a few minutes and this will be repeated many times during the day. When he begins to sit up of his own volition for a prolonged period of time then he should sit on things that fit his body. His entire back should be supported and there should be support under his feet. Perambulators and high chairs do not have adjustable back and foot supports but this can be arranged

satisfactorily with books or with firm pads. During the time the child is sitting and first beginning to stand, crawling and climbing should be encouraged. In this way the big muscular groups of the body will be developed which later on will be used in balancing the various parts of the body against the forces of gravity.

When the child first begins to stand and walk he can be given training in good postural habits. Usually it is best to teach him one thing at a time comparable to the postural deformities already mentioned. In teaching we advise parents to tell the child to hold the head up well balanced over the shoulders and torso. Usually the child will learn this in a few weeks. Then he is taught to retract the abdomen, and to stand as tall as possible. Attention is given later to any faults in balance of the body which may remain. Usually by the time the child is walking across the room he has developed good postural habits and does not have to forget bad habits of balance.

After the child has learned to walk, training in good posture should be partly by example, and partly by teaching good habits of sitting and standing. Properly fitting clothing and shoes should be provided as well as suitable furniture. This is usually adequate. The child will copy the gait and posture of those about him and if this is good he will need little teaching in holding up his head, keeping his chest deep and his abdomen pulled in. This is all the training that is necessary unless real postural deformities have developed. Unfortunately, most children do not receive such early postural training. Most children come to clinics between the ages of five and ten years because postural deformities have been found either in the school examination or by their doctors.

Before we attempt correction of postural deformities we should have a definite idea of what we hope to attain. Then we should study how this is best accomplished. In training in good posture and in the correction of postural deformities the child must understand what he is doing wrongly. Secondly, he should learn coordination of the antigravity muscles and their antagonists. Thirdly, he should stretch out any contractures which have developed. Finally, an awareness of good carriage must be developed. This program requires good pedagogy, simple exercise, patience and persistence until the end is attained. After correction of the postural deformities, the patient must be watched at intervals

during growth, and added rest, exercises, or both may be required if correction is to be maintained.

Before postural correction is attempted the physician should assay the physical status of the child and examine his health habits. It is of no use to attempt to get muscular co-ordination if the child does not get adequate rest, if his nutrition is improper or if he is chronically ill. Cooperation on the part of his parents is also essential. By cooperation we do not mean constant nagging about one specific postural deformity. This produces a negativistic attitude on the part of the child. Good posture is taught more by example than by direct exercise although exercises may be necessary. The child should sleep on a firm bed, he should sit up squarely in a straight-backed chair which fits him; exercises should be given to develop co-ordination between the big balancing muscular groups of the body, between the anterior abdominal muscles and the gluteal and low back muscles. This will usually secure adequate correction of postural deformities.

The use of apparatus is never necessary in children who have normal musculature. If there is permanent weakness, a short leg, or some other fixed deformity, which cannot be fully corrected, then at times apparatus may be required.

Postural correction is adequate when the child has learned to hold the body habitually in good alignment, when he obtains what Haynes calls a postural sense so that he knows when he slumps and feels uncomfortable and pulls himself back into a position of better alignment. When this has been obtained correction will persist.

372 Marlborough Street.

CORTISONE IN WATERHOUSE-FRIDERICHSEN SYNDROME. (Lancet, London, 1:1140, June 7, 1952). After criticizing the term Waterhouse-Friderichsen syndrome (meningococcic meningitis) and reviewing its symptomatology and treatment, Emond and Walley describe two patients with this syndrome. Both were treated with 25 mg. of cortisone every six hours in addition to chemotherapy. The first patient, who was in extremis before treatment was begun, improved considerably, only to succumb to massive cerebral hemorrhage five days later. The second, who came under treatment about 12 hours after the onset, made a complete and uninterrupted recovery. It is concluded that cortisone is of great value in the treatment of this syndrome.—*Journal A.M.A.*

CLINICAL REVIEW

In order to encourage the writing of clinical articles by recent graduates or senior medical students, the ARCHIVES *will publish monthly at least one such paper from the classes of Doctor Reuel A. Benson, New York Medical College, New York, and Doctor Philip Moen Stimson, Cornell Medical School, New York. Other interested medical schools are cordially invited to submit student papers for consideration.*

AN APPROACH TO THE HANDLING OF NEUROLOGICAL AND PSYCHIATRIC PROBLEMS*

VINCENT A. O'BRIEN, M.D.
New York

The pediatrician is constantly being confronted with diseases of the central nervous system or those involving the psyche. Many times the differential diagnosis is clear-cut between the organic and the inorganic pathology, but at other times the condition remains mystical and defies the diagnostic ability of the specialist. That is the reason for which this paper is written.

In order to arrive at a correct diagnosis of a neurological condition, a systematic examination of the patient is here perhaps more important than in any other field of medicine. There is no other branch of medicine which lends itself to the correllation of the signs and symptoms with the diseased structure; but only through a careful systematic examination can these signs and symptoms be evaluated. In order to make a correct examination, thorough knowledge of the physiology and anatomy of the nervous system is necessary. Unless each sign is properly understood, the facts accumulated during the examination become meaningless. One should know what the sign means and why we seek to find it. If all the facts point to a lesion, it then becomes necessary to localize it. After a focal diagnosis, one must try to seek the nature of the lesion. This is determined by proper evaluation of the history, the onset, course and development of the illness and by good knowledge of the pathology.

Without a mental examination, no neurological status is complete. Since many organic neurological conditions, such as neo-

*Submitted as partial fulfillment of the requirements of the course in Senior Pediatrics at the New York Medical College, Flower and Fifth Avenue Hospitals, New York.

plasms of the brain, cerebral arteriosclerosis, etc., are associated with mental symptoms, it becomes necessary to take a good psychiatric history. It is not justifiable to say the patient has a hemiplegia, but to know the cause of it.

After the patient has told his story or after hearing the history from the mother without interruption, a number of questions may be asked in order to fill in the gaps. It is important to know the exact onset of the illness, whether it came on suddenly or gradually, the character of the first sign and symptom and whether the condition is better or worse, constant or remitting. A vascular insult is generally apt to cause acute onset of symptoms while a neoplasm or degenerative process comes on slowly and progresses. Psychogenic disorders are characterized by remissions. It is well to ascertain the precipitating factors which might have occurred at the time of onset of the symptoms. The question of previous attacks of convulsions or unconsciousness is particularly important. A minute description of the attack is equally important. Has there been tongue biting, urinary incontinence, headache or somnolence? Knowledge of the convulsive attack, whether there was generalized or localized twitching, whether tonic or clonic, is very important. Inquiry should be made about the occurrence of speech disturbances, such as dysarthria, aphasia, tremors, special weaknesses or paralysis, staggering gait, especially in the dark.

In children and young adults a developmental history is essential. Full-term or premature birth, general health, age of teething, walking, talking, closure of fontanels, convulsions in infancy and childhood, early diseases, progress at school, behavior at school and home—all these are questions which may have a bearing on diseases of the nervous system. Do other brothers and sisters suffer from the same illness (familial), or the parents and collaterals (hereditary) and is the affection due to prenatal influences (congenital)?

One of the commonest and most difficult problems arising in infectious disease practice is that of the differential diagnosis of infections of the central nervous system. With the advance of both clinical and laboratory observation, an increased number of specific disease entities have been included in this group which require differentiation. Early prompt, accurate diagnosis is essen-

tial since specific therapy is available. In order to understand the complexity of the problem, we may classify infections of the central nervous system into groups having a similar causation and clinical picture. In order to facilitate the approach to diagnosis, we will divide them into purulent meningitis, granulomatous and viral infections. Certain other processes involving the central nervous system must also be differentiated. Included in this group are brain abscess, brain tumor, infectious neuronitis, neighborhood reactions to septic foci in the skull and various vascular lesions. Certain other diseases not involving the central nervous system but causing manifestations, which might be ascribed to such involvement, must be considered. Meningismus, rheumatic fever and various locomotor disorders are included in this group.

Certain symptoms and signs are common to many or all infections of the central nervous system and their presence should arouse sufficient suspicion of such disease to warrant lumbar puncture and other diagnostic procedures. Headache, disturbances of the state of consciousness, convulsions, unusual irritability should suggest the possibility of central nervous system infection. Such physical findings as a stiff neck and back, Kernig's, Bruzinski's occur in a great majority of such infections.

History. Of considerable value at times is information of an epidemiological nature. In some areas, poliomyelitis is sharply seasonal in its occurrence and diseases occurring during the winter are most unlikely due to polio virus. This is considerably less true of climates lacking marked seasonal differences in temperature. Arthropod borne encephalitis can exist only in areas where the insect vector is active. Coccidioidal meningitis usually only occurs in those who have been in an endemic area in the recent past, but now there seems to be a carrier state present. The history of known or suspected tuberculous contact may be of great aid. Information concerning any illness preceding infections of the nervous system is important. Discharging ears, sinusitis, or suppurative pulmonary disease may lead to suspicion of spread to the central nervous system. Most instances of purulent meningitis are of abrupt onset, whereas granulomatous meningitis is apt to be insidious. Poliomyelitis, postinfectious encephalitis and certain other viral infections may be preceded by a distinct prodromal period or illness. A convulsive history is rare in poliomyelitis.

Physical Examination. In the vast majority of central nervous system infections, signs of meningeal irritation are prominent. In infants there is bulging of the anterior fontanel with absence of stiffness of neck and back, and tightness of hamstrings usually is noted. Most commonly neck rigidity with little or no forward flexion of neck is present in purulent and granulomatous meningitis. In poliomyelitis and other viral diseases, a free range of forward flexion is commonly noted.

The state of consciousness of child or infant may be of diagnostic value. Characteristically, depression of the consciousness is noted in purulent and granulomatous meningitis and encephalitis. Pronounced disturbance of the sensorium is relatively rare in polio and mumps-meningo-encephalitis.

A petechial rash is strongly suggestive of meningococcal etiology, although other purulent types can give it. Septic emboli to the brain and petechiae may result from bacterial endocarditis. In this case, splenomegaly, heart murmurs and splinter hemorrhages of the nail beds may aid in the diagnosis.

Demonstration of a focus of infection outside of the central nervous system is very important. Otitis media, mastoiditis, pneumonia and tuberculous pathology in the lungs may aid in the etiological diagnosis. Salivary gland enlargement may give some clue as to mumps meningoencephalitis, although the cerebral manifestations are frequently seen alone. Lower motor neurone paralysis associated with diminished reflexes is seen almost exclusively in polio, although infection due to the Coxsackie virus may cause confusion. Lesions of the third, fourth and sixth cranial nerves are common in tuberculous meningitis, not rare in encephalitis, but exceedingly uncommon in polio. Muscle spasm is prominent in polio, but is also present in some degree in other infections. Persistence of muscle spasm over a period of two or more weeks is highly suggestive of polio.

The laboratory furnishes great aid in differentiating the various groups of meningitis. A sharply elevated W. B. C. speaks for a purulent type, whereas a normal W. B. C. can be found in the granulomatous and virus types. Blood culture is useful in isolating organisms in the purulent type, but is of little help in the other types. Lumbar puncture is the most important single procedure in the study of this group of infections. The cerebrospinal pressure is

usually elevated in the purulent and granulomatous types of meningitis. Viral infections rarely produce marked or persistent elevations.

The character of the cellular exudate is of greatest importance. In early stages of granulomatous and viral diseases, polymorphonuclears predominate only to be replaced by lmyphocytes later. Over 1000 cells per cm. are commonly seen in purulent types, although less are frequently seen. On the other hand, large numbers of cells are seen occasionally in granulomatous and viral infections. It is necessary at times to follow trends in the spinal fluid to determine the type of meningitis one has.

DO NOT WAIT FOR TRENDS TO DEVELOP BEFORE TREATMENT

Characteristically, the glucose content of the cerebrospinal fluid is reduced in purulent and granulomatous meningitis. Marked reduction in glucose and chlorides occurs in tuberculous and coccidioidal meningitis. Normal glucose values are common in syphilis and viral infections. The chloride content is reduced in purulent meningitis.

The protein content of the cerebrospinal fluid may aid in the diagnosis. Significant elevations are usually encountered in purulent and granulomatous conditions, but are uncommon in the early stages of virus infections. The albuminocytologic dissociation of the so-called infectious neuronitis is an important diagnostic feature, but can appear late in the course of polio.

Demonstration of the etiological agent is of the greatest diagnostic significance. Properly stained smears should be made from the centrifuged sediment and will often show the etiologic agent. Cultures should be made of the cerebrospinal fluid. If no organisms are observed in the smear of a purulent spinal fluid, a meningococcal etiology is probable.

Since demonstration of tuberculosis, coccidioidomycosis and other foci of infection outside of the central nervous system may be of inferential diagnostic value, maximum use of x-rays and skin tests should be made. In a child under five years, a positive tuberculin reaction is highly suggestive of active tuberculosis, although in an adult the significance is much less. Both tuberculin and coccidiodin skin tests may be negative in disseminated forms of these infections. The demonstration of high precipitin or

carbolfuchsin antibody titers may give positive diagnosis in the case of coccidioidomycosis.

Serologic tests are frequently used in a limited number of infections. The Wassermann for syphilis and the heterophil test for infections mononucleosis are frequently used. Carbolfuchsin tests are available for viruses of Eastern and Western equine encephalitis, St. Louis encephalitis, mumps and lymphocytic choriomeningitis.

Although intracranial tumors are less frequent in infants and children than adults, they comprise an important group of neoplasms in childhood. Tumors of the central nervous system comprise 44 per cent of cases of malignant disease of children less than 15 years of age. Tumors of the brain and central nervous system ranked third as a cause of death from malignant disease at ages 1 to 4 years and second at the age periods 5 to 9 and 10 to 14 years according to the Metropolitan Life Insurance Company. Two-thirds of the tumors are infratentorial and one-third are supratentorial.

The most constant and one of the most important symptom of an intracranial neoplasm is vomiting. The vomiting, contrary to belief, is usually not projectile in type and is often associated with nausea. Many times the initial symptoms are interpreted as a gastro-intestinal upset. Thus the underlying cause may go unrecognized for weeks or months. Delay in diagnosis is further enchanced by the fact that nausea and vomiting are often intermittent in type, occurring every morning for a period of several days and then disappearing for days or many weeks, leaving the child symptom free. Vomiting then recurs at a later date in a more persistent form. Several such episodes may recur before intracranial pathology is suspected.

Epileptic manifestations are rarely associated with infratentorial tumors, but frequently occur with tumors of the cerebral hemispheres. The convulsions are many times diagnosed as idiopathic epilepsy until neurological signs become manifest. The majority of the seizures are generalized and are not localizing.

Headache is another symptom encountered, although less constant in children than adults. Diplopia, strabismus, papilldema and enlargement of the head are important symptoms of intra-

cranial neoplasm. Symptoms pointing to localization will be mentioned briefly.

Posterior midline cerebellar tumors tend to give rise to staggering gait and also an uncertainty of gait, the signs of cerebellar dysfunction being most marked in the trunk and lower extremities resulting from disturbance of equilibrium. Cerebellar hemispheric tumors tend to give to more severe dysnfunction. The symptoms are more severe on the side of the tumor and produce disturbances of voluntary muscular activity readily manifested by the finger to nose, heel to knee and by the presence of adiadokocinesis. Brain stem tumors give rise to increased intracranial tension and give palsies of one or more cranial nerves. Such neoplasms are often diagnosed as encephalitis because of absence of increased intracranial pressure.

The astrocytoma is the most common intracranial neoplasm in children, accounting for about 25 per cent. They are located in the cerebellar hemispheres or in the vermis of the cerebellum. These offer the best prognosis of the intracranial tumors or gliomas in children. They are generally slow growing, but tumors involving the vermis may give rise to an abrupt onset of symptoms of increased intracranial pressure and are sometimes indistinguishable clinically from the more rapidly growing medulloblastomas. The results in treatment of the cerebellar astrocytomas are encouraging. Of 20 patients with cerebellar astrocytomas surgically treated by Bailey, Buchanan, and Bucy, 80 per cent are living one to eight years later, the majority of these well, the others with varying degrees of disability, including total blindness.

Medulloblastoma is another frequent tumor of intracranial origin accounting for 20 per cent of the neoplasms. These are almost entirely midline cerebellar tumors. They are rapidly growing tumors, occurring most often in boys from five to six years of age. The prognosis is poor in these cases even though the tumor is radiosensitive.

Gliomas of the brain stem constitute 15 per cent of cerebral tumors. They are readily confused with encephalitis because there is associated fever, cranial nerve palsies and late development of increased intracranial pressure. Although many are histologically benign, their location makes operative removal impossible.

Ependymomas comprise about 10 per cent of cerebral neoplasms in children. These tumors usually arise from the floor of the fourth ventricle and give rise to symptoms often indistinguishable from those of the midline cerebellar medulloblastomas. These tumors are also benign, but their location is such that operative attempts at removal carry a high mortality. Their ultimate prognosis is poor.

The roentgenographic examination of the skull in the anterioposterior and lateral stereoscopic view is a basic necessity in all patients suspected of a brain lesion. Widening of the sutures, displacement of vascular markings, intracranial calcification, calvarian distortion or erosion may give a clue to the location of the tumor. The wrist should be included to look for a lead line at the epiphysis to rule in or out lead encephalopathy.

The examination of the brain waves often is of localizing value and should be made in all cases. The encephalogram has greatest value in the localization of hemispheral tumors and in the elimination of certain cases of idiopathic epilepsy as tumor suspects.

Pneumoencephalography is a safe and valuable procedure in the absence of clinical evidence of intracranial hypertension. It may eliminate the likelihood of a brain tumor or it may enable a reliable diagnosis to be made. The localization of tumors of the cerebral hemispheres by air studies is well-known. If intracranial hypertension is present, ventriculography is preferable to the pneumoencephalogram. Many children harboring brain tumors react badly to ventriculography, so that an immediate surgical attack upon the tumor is necessary as soon as the air studies are completed.

Lumbar puncture is contraindicated in the presence of papilledema. Spinal fluid may help, but it should not be forgotten that there are no characteristic findings in brain tumor.

Radioisotopes, such as radioactive iodine and P32, have been used for the localization of brain tumors. These radioactive substances localize and concentrate themselves in the tumor mass. The radioactivity is then picked up with a Geiger counter. To date these techniques have not been used extensively in brain tumors in children.

Cerebral angiography is the only method of value in the diagnosis of vascular lesions of the brain, such as aneurysms, throm-

losis and arteriovenous abnormalities of one sort and another. By means of angiography, not only the size and locations of the lesions, but also the source of the circulation and apparent operability, may be determined. On the other hand, the angiographic alterations in acute head injuries are much less specific. The interpretation of subdural hematoma is difficult on lateral films, but are quite characteristic in the frontal films. Two aspects of the roentgenograms in the diagnosis of intracranial tumors: first, the displacement of normal vessels and, second, the circulation of the tumor itself. Meningiomas have a slow circulation through fine vessels and hence are revealed in the later part of the series of roentgenograms as opaque masses with large surrounding veins. Astrocytomas are accompanied with marked displacement of vessels and small areas of vascularization. Glioblastomas reveal less displacement of vessels but have arteriovenous fistulas with lakes. Cysts, abscesses and tubercles are avascular and reveal their presence usually only by displacement of vessels.

To the clinician, paradoxically, failure to recognize organic disease seems a far more serious oversight than neglect of a behavior problem. There are certain fundamental emotional demands in this age period. No description, however graphic, portrays so well the innermost emotions of a group as does the child who mirrors without distortion all conflicts within the family. Reflected in the emotional outlook of the pediatric patient is an image of the good or bad home environment.

Primary causes of misbehavior include personality oversensitivity, conflicts with home influences, problems of growth and development, pressure of education, and the frustration of instinctive drives. Some combination of these often represents the uncertainties which bring the functionally imbalanced child to the physician.

Conducting a psychiatric interview requires a thorough knowledge of the subject in hand. Nevertheless, the physician, without special training in psychiatry, can carry on an revealing interview if he is cognizant of certain facts and techniques and is willing to try to utilize them. Too often, the pediatrician considers this aspect of his examination as too subjective, nonscientific and outside his domain.

The purpose of the interview is to discover the nature of the child's problems and preoccupations, the sources of his worries and anxieties, and the manner in which he deals with them. The interview should provide information regarding two large areas of the child's personality. First is the study of the child's interpersonal relationships, his attitudes and feelings toward members of the society in which he lives. Second is a study of the child's fantasy and unconscious life, such as a study of dream life, fears and anxieties, phobias, introjective phenomena, projective phenomena. The child should be helped to give this information without creating undue anxiety, pain or fear.

Psychologic testings usually yield results which are of diagnostic value. Pencil and paper drawing tests offer a rapid and accurate method of estimating the developmental level of the child. These tests are easily performed in the routine examination. These tests tend to show or mirror the problems of the child, both physical and emotional, and tend to give a clue to the child's personality.

Tests in which the patient is asked to draw specific objects or patterns have been standardized. The Gesell scale places the ability to copy a circle at about three years, a square at five, and a diamond at 6 to 7 years of age. The Bender visual motor Gestalt test reveals maturational levels between the ages of 4 to 11 years. In this test, the patient is asked to reproduce a specific series of nine geometric patterns. Poor reproduction of these B G figures results from either organic or psychogenic disturbance. Developmental lags in language or motor fields, diffuse encephalopathy, where no focal neurologic signs can be elicited, reveal primitive patterning of the Gestalt figures and efforts at compensation. The Goodenough, draw a man test, gives an accurate measure of intelligence. The patient's drawing of the human figure is really a mirror of the child's concept of himself. Depending on the course, location and extent of organic disease, there may be seen a disorganized figure, one with pulls from uneven muscle tones, emphasis upon perceptual structures, or attempts at control of seizures. A study of each whole figure reveals a dominant mood or attitude. Detailed examination shows the infinite variations which go to make up the personality.

The Rorschach Test consists of ten symmetrical, variously colored and differently shaped ink-blots which are presented to the

patient, one at a time for description and comment. It may be helpful in revealing the particular way of life that the child has chosen for getting along in the world.

The Thematic Appreciation Test consists of a series of pictures about which the subject is asked to tell a story. A child, such as one with schizophrenia, often builds up dramatic stories which have no relation to the picture which is presented. The tales may be fantastic and may concern such things as life, death, devil and God. The patient tends to interpret the pictures as referring to himself.

The general mental level or I.Q., in the majority of cases, gives results which are not representative of the subject's true mental level. Though some patients differ little in performance from average children, others show considerable unevenness in functioning. No one pattern is significant or diagnostic of psychiatric problems.

Schizophrenia in children has been defined by Bradley as a severe mental illness in which the distinguishing characteristic is a withdrawal of interest in the environment. There a diminution of appropriate emotional response to real situations, a loss of interest in the world of reality, and at the same time the "schiz" is preoccupied with the imaginary world. Simple mental retardation, cerebral organic disease, delayed development in the ability to talk, and behavior disorders must be distinguished from schizophrenia. The diagnosis of schizophrenia should be suspected in every severely disturbed child. In the early years from 3 to 5, disturbances of speech, such as mutism, regressions, fragmentary speech, are prominent symptoms. Seclusiveness, unusual preoccupation with trifles, excessive anxiety, withdrawal of interest are other suggestive signs. In schizophrenia, as distinguished from simple mental retardation, development proceeds normally at first and then either slows down or deteriorates. The mental condition of the "schiz" affects certain functions or faculties, such as speech in contrast to mental retardation.

In organic disease of the brain, the diagnosis is made on the following symptoms: traumatic birth injury or history, postnatal anoxia, early attack of whooping cough, encephalitis, slow but progressive development, positive neurologic signs, sensory or perceptual disturbances.

Severe behavior disorders, accompanied by excessive anxiety, are sometimes difficult to distinguish from schizophrenia. In such cases, children should be referred to institutions where they can receive prolonged psychiatric observation.

Electro-encephalogram changes are frequent in children with schizophrenia, but no characteristic changes are noted.

Conditions, such as anorexia, obesity, tics, finger sucking, enuresis, masturbation and temper tantrums, are psychological and emotional problems. The various etiologies can usually be determined through careful interview with the patient. If the cause of the condition is found, the elimination of this cause will usually terminate or ease the condition.

Disorders of speech, reading and hearing are mentioned in as much as emotional factors are frequently involved as causes or results. Psychologic care is practically always necessary.

Thus, in considering problems of a neurologic order, do not forget that the mental examination is of extreme importance in diagnosis. The psychiatric examination is just as important in the common history and physical examination because many of the complaints encountered in general practice stem from mental illness and may be considered psychosomatic.

PERFORATED DUODENAL ULCER IN NEWBORN INFANT. (Maandschrift voor Kindergeneeskunde, Leyden, 20 : 108, May 1952). On the day following its delivery an infant had symptoms of a perforated ulcer. Laparotomy revealed a perforation of the duodenum 2 cm. below the pylorus. The perforation was sutured, the bile-colored fluid and foam was removed from the abdominal cavity, and the abdomen was closed. The infant was given no oral feedings for seven days after the operation, but was given blood transfusions and fluids by intravenous injection. Oral feeding after that at first resulted in vomiting, but on the 10th day breast feeding could be established. Subsequently feeding had to be modified, and two months after the operation vomiting had ceased and there were no further complaints. This is the second case of a successfully surgically treated duodenal ulcer in a newborn infant to be reported in the literature.—*Journal A.M.A.*

PEDIATRICS AT THE TURN OF THE CENTURY

From time to time the Archives, which was the first Children's Journal in the English language, will reprint contributions by the pioneers of the specialty over fifty years ago. It is believed that our readers will be interested in reviewing such early pediatric thought.

LESIONS OF THE UPPER AIR PASSAGES DUE TO HEREDITARY SYPHILIS*

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For a number of years I have been much interested in a class of cases in children that show lesions in the upper air passages due to hereditary syphilis. My attention was directed to these cases because of the general, if erroneous, belief of the profession, that if a child shows no evidence of hereditary syphilis during the first six months of its life, it will not, in all probability, succumb to the disease. The fact is overlooked that the mother of the child may have been treated for syphilis during pregnancy and continued the treatment after the child was born, thus delaying it temporarily.

It has been my habit for years, both in my private practice and in my clinic at the Presbyterian Hospital, to give a course of antisyphilitic treatment to all young children with *hypertrophy* of the cervical and submaxillary nodes. Under this treatment the glandular hypertrophy disappears and the children begin to improve both mentally and physically. I do not mean to imply that all children suffering from enlarged cervical nodes are victims of hereditary syphilis; but that many of them are, is certain. By giving these children the antisyphilitic treatment early, they are rendered less susceptible to serious illness, for the power of resistance in these syphilitics is so reduced that they easily become victims to disease. Also, abscesses of the nodes, or even gummatous deposit of the upper air passages may form, and when the physi-

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cian sees these cases he is apt to make an erroneous diagnosis of *tuberculosis.*

It has always been my habit to impress on the minds of all students of medicine that syphilis is a disease that remains dormant in patients for years. Healthy children may be born to these people; later, when one of the parents suffers a relapse, a child is born into the world—a syphilitic. Again, the next conception may result in a healthy child, while the child following the healthy one may show signs of hereditary syphilis. The parent at this time may be innocent of having any recurrence of his old disease.

We are often called upon to make a diagnosis of syphilis from very slight clinical evidence, such as the roughened and corrugated condition of the tongue, with here and there a white patch, suggestive of leukoplakia. Such a case was brought to my attention several weeks ago in my clinic at the Presbyterian Hospital, when Dr. A. F. Büchler brought a young boy to me because of this peculiar condition of the tongue. After examining the tongue I said I had never seen this condition of the mucous membrane except in syphilis, and more especially in the hereditary stage. In questioning the boy I learned that he was a former patient of mine at Bellevue, when he had come under my care when two weeks old. His father was suffering from tertiary syphilis when the mother conceived, and died when the baby was four weeks old. I found the same condition of the mucous membrane of the tongue in the older brother, who showed marked evidence of intense poisoning in his lymphatics, with poor mental and physical condition.

The idea seems to be deep-seated in the minds of physicians that the presence of Hutchinson teeth is necessary to a diagnosis of hereditary syphilis. My clinical experience has been that not more than one per cent, certainly not more than 2 per cent, of the children suffering from hereditary syphilis, show Hutchinson teeth, and no one should hesitate to make a diagnosis and give the proper treatment when the Hutchinson teeth are absent. Pediatricians and textbooks on diseases of children, as a rule, pay little attention to the clinical appearance of the throat lesions, in formulating a proper diagnosis, and, consequently, physicians often overlook the symptoms of hereditary syphilis. An ulceration is seen in the nose or pharynx, and at once a hunt is begun for enlarged

glands, Hutchinson teeth, and history of infection. The possibility that a child may have a gumma of the soft palate, or of the nasal septum, without any noticeable infiltration of the neck, is not taken into consideration.

This ignorance of the appearance of lesions in the upper air passages is true, also, of the general surgeon. Several years ago I visited the operating room of a large hospital after leaving the clinic, and saw a boy of five being prepared for operation. He was to have the necrosed part of the ramus resected. Fortunately for the little fellow I recognized him as the child of a family of syphilitics. The surgeon was informed of the fact, and requested not to operate. The child was put to bed and the proper treatment instituted. The necrosed bone gave way to healthy bone, the sinus healed, and the child was saved from disfigurement for life.

Several years ago a little girl of ten years was sent into the service of Dr. H. A. Haubold at the Harlem Hospital for operation, with a fistula of the trachea of two years' standing which discharged abundantly. I was asked to examine the child and found a fistula at the first ring of the trachea. The fistula ran in an upward direction to the larynx. No ulceration could be seen upon laryngological examination. A diagnosis of hereditary syphilis was made in this child, antisyphilitic treatment was given and the patient left the hospital in a short time. I discovered that at this time I was treating a younger sister of this patient at the clinic. She was suffering from periostitis of the femur and knee joint, and was just beginning to walk again. Several years before I had treated the mother of these children for syphilis.

Great care must be exercised in inquiring into the history of these cases, especially in asking about the health of the father. In the clinic these children are generally brought by the mother, whose suspicion is very easily aroused when too close inquiries are made, or a hint dropped that the disease is inherited. If the parents of the little sufferer are of the wealthy and more educated class, it often happens that we cannot make any inquiries, and a diagnosis must be made from the clinical picture alone. One does not often hesitate to ask a man when he had syphilis, but feels some reluctance in accusing the wife of having had the disease when she is the one to be blamed. I have a mother and baby now

under my care, suffering from syphilis. The woman has been married six years. Ten years ago she contracted syphilis, and for a short time underwent treatment. Ten years later, while suffering from a gumma of the nose, she was unfortunate enough to become pregnant when the disease was at its height. She was placed under vigorous medication, the baby was born at full term, but it shows evidence of the disease. It is in these cases that we must protect the guilty one, and not destroy the confidence and love of the other.

My clinical experience leads me to believe that a great many postpharyngeal abscesses are caused by hereditary syphilis. These abscesses occur mostly in children, and, while no doubt some are caused by tubercular deposit, all that I have seen yielded more readily to antisyphilitic treatment than to anything else.

I remember one little girl who was brought to the clinic, suffering from a postpharyngeal abscess, which was opened through the pharynx. The child made two or three visits and then disappeared only to return eight weeks later with a larger abscess which was opened. On pressure, pus not only ran out of the wound, but discharged through the ear by way of the Eustachian tube. By this time the patient's mother was thoroughly frightened, antisyphilitic treatment was given, and the child made a complete recovery.

All cases of pharyngeal abscess I open by way of the mouth, and if the child has no evidence of tuberculosis, treat it as a case of hereditary syphilis. I have never seen a postpharyngeal abscess in which it was necessary to make an external opening. If the general surgeon would pay more attention to these cases of hereditary syphilis, and would call in a laryngologist and follow his advice, he would submit but few of these children to a major operation.

The clinical appearance of ulcerations in hereditary syphilis in the mouth and pharynx differ very slightly from that of a tertiary ulceration, except that in the latter there is more infiltration of the surrounding tissues.

An interesting example of this was brought to my clinic at the Presbyterian Hospital a short time ago in the case of a three-months-old baby. The mother noticed that the baby swallowed with difficulty, and some of the food regurgitated through the

nose. The baby was bottle-fed, weighing six pounds. The child was fretful; the facial expression one of anxiety; did not sleep well and had been losing flesh since it was four weeks old. For the last three weeks has not been able to swallow so well. Examination showed some infiltration of the right submaxillary and cervical glands. A small perforation was seen of the *soft* palate on the right side of uvula. The mucous membrane about the perforation was intensely red; no edema of the uvula or surrounding tissue; tonsil, anterior and posterior pillars of pharynx in normal condition. The mother has had four children, all of them healthy, except this one.

Diagnosis. Perforation of the soft palate due to hereditary syphilis. Treatment: Five drops of the saturated solution of potassium iodid to be given in its food three times a day, with instructions to increase one drop every day until it was taking 15 drops, t. i. d. The mother reported that in forty-eight hours the child began to swallow better, and in two weeks' time the perforation was entirely healed, leaving only a small white scar. The baby was then put upon inunctions of blue ointment and is now getting fat.

The clinical appearance of ulcerations of the larynx are somewhat different. The ulcer looks more like the old chronic ulcers seen on the legs of elderly people, with thick indurated edges covered with granulations. These ulcerations in the larynx heal much less readily than the ulcerations in the nose and pharynx, and there is always the danger of sudden relapse, even while they are under most careful supervision. Such a case has been under my care for the past five years.

J. H., age twelve years, small of stature, has been failing in health for some time, looking worse every time he returns from school. Has been gradually getting worse for six months. Mother had twins eighteen months after marriage. One child lived one year and the other eighteen months. One year and a half later she gave birth to another child which lived only a few minutes. The babies were well formed, with no marks upon their bodies. One year later this boy was born. Cervical and submaxillary glands were hypertrophied. He gave no trouble when a baby and was in good health until eleven years of age. Father died five years later from cerebral syphilis. Examination reveals

the cervical glands hypertrophied, the submaxillary glands the size of a walnut, voice husky, boy speaking in a shrill whisper. Mouth, pharynx and teeth in fine condition; tongue surface roughened; tonsils very small; epiglottis infiltrated, ulceration extending over free border with partial destruction of left side. Larynx shows arytenoids thickened with ulceration of the interarytenoid commissure and left cord. Such laryngeal cases as these require the most careful attention. The irritation caused by iodids makes it often necessary to discontinue their use for a time, substituting in their place some form of mercury until the irritation is reduced.

I was recently asked by Dr. Irving S. Haynes to examine a case in the isolation ward of the Harlem Hospital, with the following history: Dr. Krauskopf, the ambulance surgeon, brought in an emergency case, a child twelve years old, almost moribund. The mother reported that the child had been in bed for three days, when breathing suddenly became very difficult. The child was rushed to the hospital and a tracheotomy tube inserted. The case was thought to be one of laryngeal diphtheria. A culture was taken and the Board of Health reported negatively. Four days later I saw the child. She was then running a temperature and the tracheotomy wound was suppurating.

No examination of the larynx could be made because of the edema of the epiglottis. I advised Dr. Haynes to open the trachea in order to see the cause of the obstruction, because as soon as the tube was removed the child stopped breathing. He was reluctant to do this, on account of the suppuration. Several days later I was able to examine the larynx, and found a large gumma of the interarytenoid commissure and ulceration of the left arytenoid cartilage with syphilitic infiltrations around the tracheal wound. Under vigorous antisyphilitic treatment the tracheal wound at once healed, the child left the hospital in ten days, and now, six weeks after her entrance to the hospital, the arytenoid was healed, and only a small ulceration is seen in the interarytenoid space. We learned later that the child had had an attack of *dyspnea* lasting four or five days, three weeks previous. This child's difficulty was due to the presence of the gumma in the interarytenoid commissure, which also prevented the insertion of the intubation tube.

Gumma of the trachea is rare, and fortunately so, because of the difficulties in the way of diagnosis, and of the danger to the

patient not only from suffocation during the formation of the gumma, but also from the cicatricial tissue which is sure to follow the active ulceration.

When a child presents itself with a history of dyspnea, a differential diagnosis must be made between papilloma of the trachea, tubercular infiltration or abscess, and gumma.

The history for diagnosis of papilloma will be as follows: Dyspnea has extended over a period of several months, with a gradually increasing difficulty in breathing; loose cough generally present, the trachea filling up with mucus, attended perhaps by severe attacks of bronchitis. The general health in these cases is not bad.

In tubercular abscess or infiltration a history of tuberculosis in some other part of the body will be found. The general cachexia in the patient would help clear up the diagnosis.

With *gumma* the difficulty in respiration occurs at intervals. The history will show that the dyspnea has existed for ten days or two weeks, and that the paroxysms of coughing are brought on by the least exertion. These little patients suffer more toward night. When put to bed, they lie with head elevated, and are restless during the night, but improve toward morning, when they will often fall off into a quiet slumber. As the gumma increases in size, the breathing becomes more labored, the child has an anxious expression and hard cough with little expectoration. A very interesting case of this kind was brought to the clinic at the Presbyterian Hospital, October 30, 1903.

M. W., age five years. Mother noticed difficulty in breathing some time in August. The child was treated at home. His breathing gradually became worse, giving him the most trouble the forepart of the night, when he would almost suffocate. At the clinic he could be heard across the room, so marked were his efforts to breathe. Examination of the mouth showed no Hutchinson teeth; pharynx was normal; epiglottis infiltrated and partially paralyzed. Left arytenoids showed slight infiltration with very limited motion; true cords not congested. In the trachea a tumor, extending beyond the median line, could be seen, which remained stationary during inspiration. A diagnosis of gumma was made and the child at once put upon antisyphilitic treatment, with marked improvement inside of forty-eight hours. This patient

was given 5 grains of potassium iodid, three times daily, the dose rapidly increased to 25 grains. In less than one week he was able to sleep without any extra pillows. The infiltration and paralysis of the epiglottis have disappeared, the tumor is gradually decreasing in size and the trachea will soon be normal.

It is really marvellous how quickly the iodids give relief in these cases of ulcerations. In twenty-four hours improvement can be seen, if the physician is not afraid to push the iodids.

It may be said, in conclusion, that we have ulcerations of the upper air passages, due to hereditary syphilis, when none of the classical symptoms which the physician is apt to consider necessary to a diagnosis of the disease are present, viz., Hutchinson teeth, keratitis, and the frog-like appearance of the face due to the flattening of the bridge of the nose.

HEPATOSPLENOMEGALY AND MATERNAL RUBELLA. (Medical Journal of Australia, Sydney, 1: 516, April 12, 1952). The main abnormalities so far reported as resulting from maternal rubella have been in the heart, the lens, or the cochlea; less common complications reported are mental retardation, mongolism, microcephaly, dental defects, hydrocephalus, cleft palate, hypospadias, congenital obliteration of the bile ducts, and diaphragmatic hernia. Watson presents the cases of a girl and boy, aged 8 and 9 years, respectively, who had splenic and hepatic enlargement together with other abnormalities known to be associated with maternal rubella. They believe that hepatosplenomegaly, with congenital heart disease in both cases, and congenital cataract in the second case, is, in the absence of any other cause, due to changes taking place in utero. In both cases an alteration in early embryonic cell division due to maternal rubella is postulated. In the first case portal hypertension was predominant; this is also likely in the second case, in which a high level of serum bilirubin in the presence of further liver disease would appear to indicate a grave degree of hepatic insufficiency. The first patient, the girl, died; the second patient also has a poor prognosis. A search of the literature failed to reveal a record of hepatosplenomegaly as a complication of maternal rubella.—*Journal A.M.A.*

DEPARTMENT OF ABSTRACTS

HAMMON, W. Mc D.; CORIELL, L. L.; WEHRLE, P. F. AND STOKES, J., Jr.: EVALUATION OF RED CROSS GAMMA GLOBULIN AS A PROPHYLACTIC AGENT FOR POLIOMYELITIS. FINAL REPORT BASED ON CLINICAL DIAGNOSIS. (Journal American Medical Association, 151:1272, April 11, 1953).

Gamma globulin in an average dose of 0.14 cc. per pound of body weight was shown to give highly significant protection against paralytic poliomyelitis. These conclusions are based on 104 cases of paralytic disease occurring among approximately 55,000 children, half of whom received gamma globulin and half gelatin. The period of follow-up was 14 weeks. Cases occurring during the 1st week following the injection of gamma globulin were significantly modified in severity. During the next period of four weeks a high but not complete degree of protection was demonstrated. During the 6th-8th weeks after injection, the protection appeared to be waning, and none was detectable after the 8th week. MICHAEL A. BRESCIA, M.D.

LEHR, D.: COMPARATIVE MERITS OF 3, 4-DIMETHYL-5-SULFANILAMIDO-ISOXAZOLE (GANTRISIN) AND A SULFAPYRIMIDINE TRIPLE MIXTURE. (Antibiotic and Chemotherapy, 3:71, Jan. 1953).

A mixture of sulfadiazine, sulfamerazine and sulfamethazine (equal partial amounts) was compared with gantrisin with regard to absorption, fat in the body, and excretion in experimental animals and man. In addition the in vitro antibacterial activity of these two preparations was evaluated in a number of bacteria responsible for common human infections. It was found that both preparations are equally well absorbed. However, maintenance levels of the triple mixture in the blood may be twice as high as those of gantrisin. In the urine, on the other hand, gantrisin reaches many times the concentrations of the sulfapyrimidines. Diffusion of the sulfapyrimidines and their mixtures through the metatocephalic barrier is far better than that of gantrisin. The in vitro antibacterial spectrum of gantrisin and the sulfapyrimidines is of

about the same order, both with regard to degree and scope of activity. The occurrence of true potentiation of action when employing mixtures of sulfonamides is confirmed. It is pointed out that the solubility of gantrisin and its acetyl derivative is inadequate in human urines of higher acidity and that alkalinization is indicated in order to avoid renal complications. It is reiterated that mixtures of sulfonamides show no greater incidence of sensitization reactions than their single components in full dosage. The conclusion is reached that triple mixtures of sulfonamides are the better preparations for the treatment of systemic infections, whereas gantrisin possesses the more desirable properties for urinary antisepsis. AUTHOR'S SUMMARY.

McEACHERN, C. G.; McCOY, R. R. AND ARATA, J. E.: LOBECTOMY FOR CONGENITAL CYSTIC DISEASE OF THE LUNG. (Journal American Medical Association, 151:992, March 21, 1953).

A one-week-old white male infant was admitted to the hospital with a history of increasing dyspnea and cyanosis noted on the seventh day after birth. Roentgenograms disclosed large, multiple, cystic cavities filling the right side of the chest and pushing the heart and mediastinum to the left, compressing the left lung. On the ninth day of life a right thoracotomy was done. A large, lobulated, dense cyst filled the right pleural cavity and displaced the mediastinum to the left. The right upper and middle lobes were atelectatic but normal to palpation. The cyst was punctured and a right lower lobectomy was done. The middle and upper lobes then expanded normally. The infant made an uneventual recovery. X-rays four weeks later showed the right upper and middle lobes to be expanded and the heart and mediastinum in normal position. MICHAEL A. BRESCIA, M.D.

SWAN, H.: SURGICAL CLOSURE OF INTERAURICULAR SEPTAL DEFECTS. (Journal American Medical Association, 151:792, March 7, 1953).

Operative methods for the closure of interauricular septal defects, developed in the experimental laboratory, have been given clinical trial. The technical problems involved in the operative attack on this cardiac malformation are briefly discussed. Interauricular septal defect is a lesion that, if the disturbance of blood

flow is sufficient, can cause cardiac enlargement leading to death from cardiac failure at an early age. Five patients in advanced stages of disease have been operated on. Four patients tolerated the procedure well, while one died postoperatively. A 2-year follow-up on two patients shows fair clinical improvement in one, good clinical improvement in the other. Two patients, operated on with a modified technique, have been treated too recently to evaluate the long-term results. Patients with I-A septal defect, who demonstrate progressive cardiac enlargement with a marked increase in pulmonary blood flow, should be considered candidates for operative therapy. AUTHOR'S SUMMARY.

GROSS, R. E.: SURGICAL CLOSURE OF INTERAURICULAR SEPTAL DEFECTS. (Journal American Medical Association, 151:795, March 7, 1953.)

Extensive laboratory study and observations of seven human beings have shown that it is possible to attach an "atrial well" to the right auricle so that this chamber can be opened and blood allowed to rise in the well to a height equal to the intra-auricular pressure, which is not more than 5 to 10 cm. Blood in the well can be kept fluid by local addition of heparin solution. It is possible to work through this open pool of blood and enter the cavity of the auricle. With this approach, it is possible to close interauricular septal defects in a deliberate and careful manner. From observations to date, it would seem that the best method for attaining this end is to cover large septal openings by the onlay of a thin sheet of plastic material, such as polyethylene. For closure of small septal defects, a direct suture and approximation of the edges is satisfactory. While there is much to be learned about the surgical closure of interauricular septal defects, experiences to date indicate that the methods outlined in this paper have practical value for the correction of these congenital malformations of the heart. AUTHOR'S SUMMARY.

ODESSKY, L.; JENNINGS, K. G.; SANDS, I. J.; SCHIFF, I. AND ROSENBLATT, P.: PRELIMINARY REPORT ON THERAPEUTIC DOSES OF GAMMA GLOBULIN IN MEASLES AND MUMPS ENCEPHALITIS AND POLIOMYELITIS. (New York State Journal of Medicine, 53:431, Feb. 15, 1953.)

Therapeutic doses of gamma globulin were administered in the acute phase to 15 cases of measles encephalitis and encephalomyelitis, 17 cases of poliomyelitis, and one case of mumps meningoencephalitis. Serving as a comparative group in the encephalitis-complicating-measles study were 14 patients who received no gamma globulin in the acute phase and 12 patients who received 4 to 16 cc. of gamma globulin in the acute phase. There were 8 poliomyelitis patients who had injections of smaller doses of gamma globulin. Analysis of these cases has shown that, if therapeutic doses of gamma globulin are administered as soon as signs and symptoms of central nervous system involvement have manifested themselves, the patient's recovery will be remarkably hastened and more complete than in the cases which receive no gamma globulin or small doses of gamma globulin. Supportive therapy must be given in conjunction with gamma globulin. No reactions to large doses of gamma globulin injected intramuscularly were observed. A small percentage of cases with viral infections will develop C.N.S. complications although they receive gamma globulin for attenuation or prophylaxis. Large doses of gamma globulin can be administered for therapy in these cases with good results. It has been established empirically in viral infections complicated by central nervous system involvement that the dose of gamma globulin administered intramuscularly is a total dosage of 1-2 cc. per pound body weight, given in divided doses within a period of 24-48 hours after the appearance of the neurologic signs and symptoms. AUTHORS' SUMMARY.

McKAY, R. J., JR.; INGRAHAM, F. D. AND MATSON, D. D.: SUBDURAL FLUID COMPLICATING BACTERIAL MENINGITIS. (Journal American Medical Association, 152:387, May 30, 1953).

Fifty children with accumulations of subdural fluid of high protein content, complicating bacterial meningitis, are reported. The age incidence and characteristics of the condition appear to be identical with those of chronic subdural hematoma of infants. This study suggests that over half of patients under one year of age now treated for acute bacterial meningitis have a clinical course complicated by collections of subdural fluid, the majority of which are membrane-encapsulated. Removal of the fluid by

repeated subdural taps results in remission of symptoms. Repeated drainage of the fluid by means of subdural taps, followed by exploratory burr holes and by craniotomy with wide excision of subdural membranes, where present, is advocated as the treatment of choice. There is a probable causal relationship of such fluid collections to the incidence of permanent neurological damage after meningitis. Follow-up psychological and physical evaluation suggests emphatically that early recognition and treatment of patients with this condition reduces the incidence of neurological damage following meningitis, although lack of standardized treatment of meningitis or long-term psychological follow-up on recent patients make this impossible to prove at this time.

AUTHORS' SUMMARY.

WRIGHT, T.: AURICULAR PAROXYSMAL TACHYCARDIA IN CHILDHOOD. (British Medical Journal, 4800:25, Jan. 3, 1953).

Auricular paroxysmal tachycardia is not as rare as has often been assumed in children. The usual clinical features in children are insidious onset and cardiac failure associated with an extremely rapid heart rate (200-350 beats per minute). The paroxysm usually lasts several days. Pneumonia may be the assumed diagnosis and in fact is often present in addition to the tachycardia. Digitalis is the drug of choice in treatment. Large doses are tolerated in infancy. A smaller maintenance dose for 4 to 8 weeks should be given to prevent early recurrence of the tachycardia.

MICHAEL A. BRESCIA, M.D.

BICKEL, H.; BAAR, H. S.; ASTLEY, R.; DOUGLAS, A. A.; FINCH, E.; HARRIS, H.; HARVEY, C. C.; HICKMANS, E. M.; PHILPOTT, M. G.; SMALLWOOD, W. C.; SMELLIE, J. M. AND TEALL, C. G.: CYSTINE STORAGE DISEASE WITH AMINOACIDURIA AND DWARFISM (Lignac-Fanconi Disease). (Acta Paediatrica, 42:Supp. 90, 1952).

The clinical manifestations of Lignac-Fanconi disease are dwarfing and wasting, rickets and osteoporosis, pyrexia, eye changes, sometimes with photophobia, vomiting, polydipsia and polyuria, dehydration, acidosis, sometimes tetany, states of profound collapse and even sudden death. Laboratory findings include aminoaci-

duria, glycosuria, and sometimes albuminuria and ketonuria. The plasma reveals aminoacidemia, acidosis, hypopotassemia, mineral changes as seen in rickets, and occasionlly hypocalcemia and uremia. The diagnosis of Lignac-Fanconi disease should be suspected in all children whose dwarfing is not obviously the result of other causes. Differential diagnosis from renal rickets, resistant rickets, celiac disease, renal acidosis, galactosemia and glycogen storage disease may sometimes be difficult. Treatment of the rickets wth massive vitamin D doses, of the acidosis with Albright's solution and of the hypopotassemia with potassium salts has proved encouraging. MICHAEL A. BRESCIA, M.D.

McGOVERN, J. J.; PARROTT, R. H.; EMMONS, C. W.; ROSS, S.; BURKE, F. G. AND RICE, E. C.: THE EFFECT OF AUREOMYCIN AND CHLORAMPHENICOL ON THE FUNGAL AND BACTERIAL FLORA OF CHILDREN. (New England Journal of Medicine, 248:397, March 5, 1953).

On hundred normal children were examined to determine the incidence of Candida albicans in the gastrointestinal tract. This organism could be demonstrated in small numbers in the mouths of 14 per cent of the children and in the rectum in 6 per cent. Twenty-one normal children were given aureomycin orally for 8 days, and 24 children were given chloramphenicol, intramuscularly or orally, for 10 to 14 days. Laboratory and clinical observations were made on each child before, during and after the treatment period. Before treatment the incidence of C. albicans in the gastrointestinal tract was 17 per cent in this group of 45 children, rising to 33 per cent at the end of the treatment period. By the third to the eighth day of treatment, the average number of colonies of C. albicans had increased from 3 to 50. There was a marked decrease in the gram-negative and gram-positive organisms in the gastrointestinal tract, with a concomitant increase in the fungal floras, including yeasts and various species of candida other than C. albicans. AUTHORS' SUMMARY.

MESCHAN, I.; MARVIN, H. N.; GORDON, V. H. and REGNIER, G.: THE RADIOGRAPHIC APPEARANCES OF HYALINE DISEASE OF THE LUNGS IN THE NEWBORN. (Radiology, 60:383, March, 1953).

A case of hyaline disease of the lung in a newborn infant is described, and the gross and microscopic pathology of the lungs is correlated with the radiographic appearance of the chest on serial studies immediately prior to death. The clinical picture is that of asphyxia, and the gross morphology of the lung would suggest atelectasis. The radiograph, however, shows the lung fields to be unusually well aerated. This aeration is shown microscopically to be due to air in the terminal bronchioles and alveolar ducts, and not in the alveoli, which are collapsed. Moreover, a hyaline membrane over the terminal bronchioles and alveolar ducts probably prevents adequate interchange of gases. This paradoxical demonstration of aeration on the radiograph in a newborn child under 72 hours of age may indicate hyaline disease of the lungs. To our knowledge this finding has not previously been described.

AUTHORS' SUMMARY.

DOUGLAS, J. W. B. AND MOGFORD, C.: HEALTH OF PREMATURE CHILDREN FROM BIRTH TO FOUR YEARS. (British Medical Journal, 4813:748, April 4, 1953).

676 live-born prematures were compared with 676 full-term children born during the same week in 1946 and in the same environment. The high mortality of premature children extends beyond the first month of life, and, between the ages of 1 month and 4 years, is due largely to congenital defects and lower respiratory infections. During the first two years premature children show a higher incidence of hospital admissions, mainly due to bronchitis and pneumonia. This greater susceptibility to infection is found among premature children even in favorable home environment. In general, premature children, after they have reached the age of two years appear to be as healthy as those born at term.

MICHAEL A. BRESCIA, M.D.

BOOK REVIEWS

FANCONI AND WALLGREN'S TEXTBOOK OF PAEDIATRICS. Edited by W. R. F. Collis, M.A., M.D., F.R.C.P., F.R.C.P.I., D.P.H. Translated from German by E. Kawerau. Cloth. Illustrated. Pp. 1104, Price $19.50. New York: Grune & Stratton, 1952.

This is an excellent textbook for teaching and reference purposes. It is well written in a concise and easy style. The many excellent pictures and colored photographs of various skin lesions enhance the value of the text. This volume should be in every library to supplement the American texts on pediatrics.

MICHAEL A. BRESCIA, M.D.

GENERAL COLLEGE CHEMISTRY. By Frank Brescia, Ph.D. Cloth. Pp. 581. Illustrated. Price $6.00. New York: The Blakiston Company, Inc., 1952.

Most medical readers' interest does not center on the basic sciences which were most important in our early training. However, the use of radio-isotopes and the related subject of nuclear fission, the introduction of natural and synthetic antibiotics, the synthesis of cortisone, the ever present interest in electrolytes, etc. make it almost imperative that one fall back on a bit of basic chemistry. This text is so written that one can enjoy reading it with interest and without sacrificing any scientific value. It makes chemistry a living and absorbing subject, placing it in its proper perspective in relation to all other sciences, both basic and practical. This book is recommended as a teaching text and ideal for reference purposes. MICHAEL A. BRESCIA, M.D.

DIAGNOSTIC MANUAL IN SPEECH CORRECTION. By Wendell Johnson, Ph.D., Frederick L. Dailey, Ph.D. and D. C. Spriestershock, Ph.D. Paper, Pp. 221. Price $2.50 New York: Harper Brothers, 1952.

This text consists of 22 units or chapters dealing with the various speech defects. A discussion of the history of a case is emphasized and a well rounded out presentation of this phase is given. The remainder of the text is devoted to the different forms of speech defects, articulation, muscular control of speech, proper breathing, nasality, stuttering and others. Following each defect are tests which are designed to pick out the particular speech defect. This is an interesting and excellent working text.

H. FRUCHTER, M.D.

He Was the Last Man

Pfc. Hector A. Cafferata Jr.,
USMCR
Medal of Honor

IT WAS DURING the Chosin reservoir fighting. Against F Company's hill position, Reds were attacking in regimental strength. The last of Private Cafferata's fire-teammates had just become a casualty, leaving a gap in the defense line. If the enemy could exploit it, they could smash the entire perimeter.

Exposing himself to devastating fire, Private Cafferata maneuvered along the line. Alone, he killed fifteen Chinese, routed the rest, and held till reinforcements plugged the hole.

The Reds hit again. A grenade fell into a gully full of wounded. Private Cafferata hurled it back, saving the men but suffering severe wounds. Ignoring intense pain, he still fought on until a sniper got him.

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